

## ABSTRACT

[86] An apparatus and method simulates more accurately the natural statistics of a physical reverberation process. A new filter design is provided having a comb shaped group delay. Gain minimums at a plurality of frequencies are combined with a delay line to create a constant reverberation time independent of frequency while allowing for temporal spreading. In addition, the connection topology between the plurality of energy transmission networks is temporally randomized to facilitate energy distribution within the reverberation apparatus. Both the temporal and spectral responses are actively changed on each iteration of the energy recirculation. By making the response have a high echo density and a lack of spectral coloration in the decay, the illusion of a natural process is enhanced.